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ABSTRACT

The actual record of births in the last fifteen years clearly indicates that the size of annual graduating classes from secondary schools will begin to decline by the end of this decade. Such a trend will be a significant environmental characteristic for the higher educational community, inasmuch as graduates from secondary schools comprise the principal source of demand for higher education. Because of the variations among geographical subdivisions in birth rates, migration, and anomalies in the grade-by-grade enrollment, the patterns of change for small geographical regions may be expected to vary from those on a state or nationwide basis. For the application under investigation, the number of graduates from public and private secondary schools in each of the sixty-seven counties in Pennsylvania were projected over a 10-year period by application of what is characteristically referred to as the cohort-survival method. Using enrollment data collected routinely by the Pennsylvania Department of Education, cohort-survival rates were computed for a number of historical years between each pair of grade-levels between one and graduation for primary and secondary school enrollments of each county. These rates were then applied to the most recently available compilations of grade-by-grade enrollment to generate projections of high school graduates for each county over the specified time horizon. (Author)

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THE PENNSYLVANIA STATE UNIVERSITY

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OFFICE
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PROJECTIONS OF HIGH SCHOOL GRADUATES
BY COUNTY FOR PENNSYLVANIA
1973-1984

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and
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September 1, 1973
Operations Research
Office of Budget and Planning
The Pennsylvania State University
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I: PROJECTIONS OF HIGH SCHOOL GRADUATES

Throughout the 1960's and 1970's, the number of live births recorded nationwide in each successive year has exhibited a steady decline. Although it had been anticipated on the basis of population composition that the downward trend would be reversed or at least stabilized in the early 1970's, current indicators are at best mixed. However, regardless of whether the trend is now changing, the actual record of births in the last fifteen years clearly indicates that nationwide the size of the annual graduating classes from secondary schools will begin to decline after 1979. Such a trend will be a significant environmental characteristic for the higher educational community, inasmuch as graduates from secondary schools comprise the principal source of demand for higher education. Shown in Table I-1 are projections of high school graduates for the total U.S. from 1973 through 1984.

TABLE I-1
PROJECTIONS OF HIGH SCHOOL GRADUATES FOR U.S. (1)

<u>Year</u>	<u>Graduates (000)</u>
1973	3,137
1974	3,250
1975	3,331
1976	3,363
1977	3,390
1978	3,420
1979	3,427
1980	3,409
1981	3,378
1982	3,298
1983	3,152
1984	2,972

STATE-WIDE

Because of the net outward migration trends applicable to Pennsylvania, the peak in the number of secondary school graduates on a state-wide basis is projected to occur in 1975, several years before the similar phenomenon on a nationwide basis. Shown in Table 1-2 are projections of high school graduates for Pennsylvania from 1973 through 1984.

TABLE 1-2
PROJECTIONS OF HIGH SCHOOL GRADUATES FOR PENNSYLVANIA⁽²⁾

<u>Year</u>	<u>Graduates</u>
1973	182,400
1974	188,700
1975	193,700
1976	192,400
1977	190,200
1978	187,800
1979	187,400
1980	178,500
1981	175,200
1982	172,400
1983	164,000
1984	157,000

COUNTY

Because of variations among geographical subdivisions in birth rates, migration, and anomalies in the grade-by-grade enrollment, the patterns of change for individual counties within Pennsylvania may be expected to vary from those applicable on a state-wide basis. For this reason, projections have been developed of the number of secondary school graduates from both public and private institutions for each year from 1973 through 1984 for each of the sixty-seven counties in the Commonwealth, as shown in Table 1-3. Although, like the state-wide projections, 1975 is the year in which the greatest frequency of peak graduates occurs among the counties, some exhibit a maximum as early as 1973 and others as late as 1982.

TABLE I-3

PROJECTIONS OF HIGH SCHOOL GRADUATES BY COUNTY

COUNTY	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
ADAMS	1025	1018	1139	1074	1132	1057	1030	971	940	927	873	749
ALLEGHENY	25464	26074	26332	25496	24804	24136	23186	21068	20213	19378	17960	16569
ARMSTRONG	1578	1527	1517	1533	1560	1428	1518	1467	1445	1427	1333	1375
BEAVER	3555	3341	3751	3813	3790	3687	3679	3463	3401	3292	3229	3042
BECFORD	826	857	875	826	841	805	754	757	732	726	673	633
BERKS	4702	4517	4523	4873	4928	4995	5046	4964	5049	5000	4698	4621
BLAIR	2339	2566	2632	2651	2534	2660	2655	2480	2403	2406	2286	2192
BRADFORD	1074	1118	1193	1130	1169	1170	1265	1273	1162	1212	1103	1047
BUCKS	7827	8441	8660	8916	9124	9322	9532	9234	9305	9262	9188	9197
BUTLER	2126	2308	2393	2567	2541	2566	2768	2615	2629	2580	2606	2574
CAMBERTA	3541	3635	3777	3534	3376	3334	3216	3035	2988	3044	2999	2881
CAMERON	124	121	108	122	115	120	117	119	113	117	109	99
CARBON	646	723	743	710	697	715	680	706	721	739	724	659
CENTRE	1169	1205	1202	1172	1159	1123	1088	1055	1097	1141	1033	1016
CHESTER	4587	5204	5230	5432	5462	5322	5298	5189	5143	4977	4718	4670
CLARION	764	650	608	524	528	520	523	518	496	467	489	452
CLEARFIELD	1544	1664	1618	1649	1680	1683	1751	1804	1750	1804	1720	1785
CLINTON	592	552	650	633	631	630	598	532	544	554	504	478
COLUMBIA	1054	1001	1061	1011	1003	959	1024	925	956	987	897	907
CRAWFORD	556	1022	1012	1052	1056	1005	1045	1078	1051	1084	1103	1112
CUMBERLAND	3041	3171	3090	3237	3224	3299	3345	3242	3316	3423	3198	3024
DAUPHIN	3685	3782	3896	3957	4064	4112	4125	4062	3984	4054	3552	3747
DELAWARE	10674	11023	11310	10887	10896	10931	11633	10573	10387	10125	9365	8984
ELK	704	745	825	797	795	750	806	767	723	728	709	693
ERIE	4852	4554	5061	4894	4531	4491	4336	4248	4134	4105	4063	3926
FAYETTE	2614	2604	2815	2763	2786	2627	2613	2440	2340	2395	2356	2280
FOREST	79	82	80	98	98	83	91	104	107	95	92	100

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
FRANKLIN	1599	1536	1586	1610	1604	1633	1643	1633	1741	1699	1538	1455
FULTON	164	185	184	194	189	148	155	196	166	197	169	200
GREEN	543	580	602	556	520	501	616	621	528	578	556	587
HUNTINGTON	616	552	632	651	738	819	961	811	880	872	925	970
INDIANA	1323	1385	1319	1385	1390	1467	1497	1553	1540	1516	1508	1464
JEFFERSON	739	815	815	794	823	780	743	730	787	763	692	688
JUNIATA	263	275	265	279	267	275	271	280	294	265	244	272
LACKAWANNA	3634	3613	3716	3708	3634	3438	3519	3324	3261	3189	3096	3109
LANCASTER	4763	5055	6305	6543	6548	6569	6435	6171	6365	6145	5871	5610
LAWRENCE	1962	1968	1989	1946	2006	1998	1943	1820	1744	1745	1662	1680
LEBANON	1561	1598	1646	1563	1532	1531	1637	1680	1643	1642	1560	1432
LEHIGH	3472	3790	4341	4330	4145	4032	4365	4081	3980	4024	3733	3690
LUTZERNE	4480	4401	4339	4461	4276	4207	4211	4114	3587	3845	3734	3567
LYCOMING	1812	1877	1933	2306	1796	1862	1862	1817	1759	1734	1606	1568
MC KEAN	989	949	966	901	889	929	870	795	753	777	823	735
MERCER	2206	2312	2298	2362	2137	2175	2117	1981	1956	1878	1832	1482
MIEFLIN	678	756	811	812	941	929	924	906	875	821	847	843
MONROE	643	735	743	798	805	797	813	778	744	771	777	718
MONTGOMERY	11125	11549	12020	11973	12260	11973	11780	11044	10716	10311	9558	8995
MONIQUE	236	253	280	276	325	318	275	274	310	264	268	278
NORTHAMPTON	3854	3756	3941	3848	3704	3630	3522	3420	3495	3614	3423	3466
NORTHUMBERLAND	1325	1513	1571	1514	1494	1452	1419	1351	1383	1356	1307	1283
PERRY	543	559	599	526	561	513	542	511	526	542	536	546
PHILADELPHIA	18894	20552	21189	20692	20468	19832	19123	18263	17442	16516	15335	13494
PIKE	112	134	148	150	156	165	171	208	144	134	118	131

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
PEPPER	255	250	257	263	274	265	283	259	255	292	243	281
SCHUYLKILL	2448	2578	2536	2469	2443	2332	2389	2318	2285	2250	2187	2030
SNYDER	402	450	443	405	416	391	354	400	408	413	448	396
SOMERSET	1212	1341	1444	1370	1337	1355	1380	1342	1336	1353	1292	1249
SULLIVAN	97	113	113	90	110	106	86	91	84	72	77	70
SUSQUEHANNA	656	641	732	641	660	628	613	597	553	584	578	611
TIOGA	624	650	596	689	692	652	638	644	680	603	764	614
UNION	352	383	425	402	374	373	384	365	384	398	368	388
VENANGO	1257	1258	1281	1202	1163	1155	1126	1051	1016	903	891	821
WARREN	660	686	700	768	725	777	786	768	772	731	741	730
WASHINGTON	3655	3603	3765	3755	3625	3500	3493	3226	3202	3102	3065	2902
WAYNE	414	455	480	476	458	475	533	515	560	519	511	573
WESTMORELAND	6665	5565	5559	5536	5623	5492	5295	5114	4590	5081	4979	4783
WYOMING	357	314	364	375	316	397	414	423	417	445	461	463
YORK	4218	4346	4259	4391	4250	4401	4540	4335	4517	4393	4092	4013
TOTALS	132400	188700	193700	192400	190200	187800	187400	178500	175700	172400	164000	157000

25 IN U.S.A.

COMMUTING REGION

Eighteen of the campuses of The Pennsylvania State University were developed to provide a means for students throughout Pennsylvania to pursue the first two years of study in higher education at a locality within commuting distance of their homes. Approximately three out of every four students enrolled in undergraduate degree programs collectively at what is now designated as Behrend College and the seventeen Commonwealth Campuses reside at home and commute to their respective campuses. Because of significance of commuting students to the size of the student body at these campuses, the projected sizes of the graduating classes from secondary schools within the commuting regions are of importance. Since the geographical region from which students commute to an institution of higher education is established by the time constraints of transportation to and from the campus, the boundaries of a commuting region are not likely to be altered significantly over time.

Shown in Table 1-4 are projections of the number of high school graduates for each year from 1973 through 1984 from schools within the so-called primary commuting region associated with each of these eighteen campuses. In Table 1-5 are projections for the so-called primary and secondary commuting regions on a combined basis. Those counties which provide 10% or more of the commuter enrollment to a campus are categorized as primary counties; those which supply less than 10% but more than 5% are categorized as secondary counties.⁽³⁾ Six out of seven commuting students at these campuses reside in counties which are within the primary commuting region of one or more campuses. Thus the primary counties are of much greater significance to commuter-enrollment than those in the secondary regions.

TABLE 1-4

PROJECTIONS OF HIGH SCHOOL GRADUATES
WITHIN PRIMARY COMMUTING REGION OF EACH COMMONWEALTH CAMPUS

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
ALLENTOWN												
LEHIGH	2472	3750	4341	4330	4145	4032	4365	4081	3980	4024	3733	3690
NORTHAMPTON	3354	3756	3941	3848	3704	3630	3522	3420	3495	3614	3423	3466
TOTALS	7326	7546	8282	8178	7849	7662	7887	7501	7475	7638	7156	7156
ALTOONA												
BLAIR	2239	2566	2632	2651	2534	2660	2655	2480	2403	2406	2286	2192
CAMBRIA	3541	3635	3777	3534	3376	3334	3216	3035	2988	3044	2999	2881
TOTALS	5880	6201	6409	6185	5910	5994	5871	5515	5391	5450	5285	5073
BEAVER												
ALLEGHENY	25664	26074	26332	25496	24804	24136	23186	21068	20213	19378	17960	16569
BEAVER	3555	3841	3751	3813	3790	3687	3679	3463	3401	3292	3229	3042
TOTALS	29019	29915	30083	29309	28594	27823	26865	24531	23614	22670	21189	19611
BEHREND												
ERIE	4852	4954	5061	4894	4531	4491	4336	4248	4134	4105	4063	3926
TOTALS	4852	4954	5061	4894	4531	4491	4336	4248	4134	4105	4063	3926
BERKS												
BERKS	4702	4917	4928	4873	4928	4995	5046	4964	5049	5000	4698	4621
TOTALS	4702	4917	4928	4873	4928	4995	5046	4964	5049	5000	4698	4621
DELAWARE												
DELAWARE	10674	11023	11310	10887	10696	10931	11633	10573	10387	10129	9365	8984
PHILADELPHIA	18394	20552	21189	20692	20468	19832	19123	18263	17442	16516	15335	13494
TOTALS	29068	31575	32499	31579	31364	30763	30756	28836	27829	26645	24700	22478
CURGIS												
CLEARFIELD	1544	1664	1618	1649	1680	1683	1751	1804	1750	1804	1720	1785
ELK	704	745	825	797	795	750	806	767	723	728	709	693
JEFFERSON	738	815	815	794	823	780	743	730	787	763	692	688
TOTALS	2986	3228	3258	3240	3298	3213	3300	3301	3260	3295	3121	3166
FAYETTE												
FAYETTE	2614	2604	2815	2763	2786	2627	2613	2440	2340	2395	2356	2280
TOTALS	2614	2604	2815	2763	2786	2627	2613	2440	2340	2395	2356	2280
HAZLETON												
CARSON	646	723	743	710	697	715	680	706	721	739	724	659
LUTERNE	4480	4401	4339	4461	4276	4207	4211	4114	3987	3845	3734	3567
TOTALS	5126	5124	5082	5171	4973	4922	4891	4820	4708	4584	4458	4226
MCKEESPORT												
ALLEGHENY	25464	26074	26332	25496	24804	24136	23186	21068	20213	19378	17960	16569
TOTALS	25464	26074	26332	25496	24804	24136	23186	21068	20213	19378	17960	16569
MONT ALTO												
FRANKLIN	1599	1636	1586	1610	1604	1633	1643	1633	1741	1655	1538	1453
TOTALS	1599	1636	1586	1610	1604	1633	1643	1633	1741	1655	1538	1453
NEW KENSINGTON												
ALLEGHENY	25464	26074	26332	25496	24804	24136	23186	21068	20213	19378	17960	16569

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
WESTMORELAND												
TOTALS	6665 32129	5565 31639	5559 31891	5536 31032	5623 30427	5492 29628	5295 28481	5114 26182	4990 25203	5081 24459	4979 22939	4783 21352
CGONTZ												
PHILADELPHIA												
TOTALS	18894 18894	20552 20552	21189 21189	20692 20692	20468 20468	19832 19832	19122 19123	18263 18263	17442 17442	16516 16516	15335 15335	13494 13494
SCHUYLKILL												
TOTALS	2448 2448	2578 2578	2536 2536	2469 2469	2443 2443	2332 2332	2385 2389	2318 2318	2289 2289	2250 2250	2187 2187	2030 2030
SHENANGO VALLEY												
LAWRENCE												
MERCER												
TOTALS	1562 2206 4168	1568 2312 4280	1989 2298 4287	1946 2362 4308	2006 2137 4143	1998 2175 4173	1943 2117 4060	1820 1981 3801	1744 1956 3700	1745 1878 3627	1662 1832 3494	1680 1482 3162
WILKES-BARRE												
LUZERNE												
TOTALS	4480 4480	4401 4401	4339 4339	4461 4461	4276 4276	4207 4207	4211 4211	4114 4114	3987 3987	3845 3845	3734 3734	3567 3567
WORTHINGTON-SCRANTON												
LACKAWANNA												
TOTALS	3634 3634	3613 3613	3716 3716	3708 3708	3634 3634	3438 3438	3515 3519	3324 3324	3261 3261	3189 3189	3096 3096	3109 3109
YORK												
YORK												
TOTALS	4218 4218	4346 4346	4259 4259	4391 4391	4250 4250	4401 4401	4540 4540	4335 4335	4517 4517	4353 4393	4092 4092	4013 4013

TABLE 1-5

PROJECTIONS OF HIGH SCHOOL GRADUATES
WITHIN PRIMARY & SECONDARY COMPUTING REGIONS OF EACH COMMONWEALTH CAMPUS

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
ALLENTOWN LEHIGH NORTHAMPTON BUCKS TOTALS	3472 3854 7827 15153	3790 3756 8441 15987	4341 3941 8660 16942	4330 3848 8916 17094	4145 3704 9124 16973	4032 3630 9322 16984	4365 3522 9532 17419	4081 3420 9234 16735	3980 3495 9309 16784	4024 3614 9262 16500	3733 3423 9188 16344	3690 3466 9197 16353
ALTOONA BLAIR CAMBRIA TOTALS	2339 3541 5880	2566 3635 6201	2632 3777 6409	2651 3534 6185	2534 3376 5910	2660 3334 5994	2655 3216 5871	2480 3035 5515	2403 2988 5391	2406 3044 5450	2286 2999 5285	2192 2881 5073
BEAVER ALLEGHENY BEAVER TOTALS	25464 3555 29019	26074 3841 25515	26332 3751 30083	25496 3813 25309	24804 3790 28594	24136 3687 27823	23186 3679 26865	21068 3463 24531	20213 3401 23614	19378 3292 22670	17960 3229 21189	16569 3042 19611
BEHREND ERIE TOTALS	4852 4852	4954 4954	5061 5061	4894 4894	4531 4531	4491 4491	4336 4336	4248 4248	4134 4134	4105 4105	4063 4063	3926 3926
BERKS BERKS LEBANON MONTGOMERY TOTALS	4702 1561 11125 17383	4517 1598 11945 18464	4528 1646 12020 18554	4873 1563 11973 18409	4928 1532 12260 18720	4995 1531 11973 18499	5046 1637 11780 18463	4964 1680 11044 17688	5049 1643 10716 17408	5000 1642 10311 16953	4658 1560 9558 15816	4621 1432 8995 15048
DELAWARE DELAWARE PHILADELPHIA CHESTER TOTALS	10674 18894 4587 34555	11023 20552 5204 36779	11310 21189 5230 37729	10887 20692 5432 37011	10896 20468 5462 36826	10931 19832 5322 36085	11633 19123 5298 36054	10573 18263 5189 34025	10387 17442 5143 32972	10129 16516 4977 31622	9365 15335 4718 29418	8984 13494 4670 27148
DUBOIS CLEARFIELD ELK JEFFERSON TOTALS	1544 704 738 2586	1664 745 815 3228	1618 825 815 3258	1649 797 794 3240	1680 795 823 3298	1682 750 780 3213	1751 806 743 3300	1804 767 730 3301	1750 723 787 3260	1804 728 763 3295	1720 709 692 3121	1785 693 688 3166
FAYETTE FAYETTE GREEN WASHINGTON WESTMORELAND TOTALS	2614 543 3655 6665 13477	2604 580 3603 5565 12352	2815 602 3765 5559 12741	2763 556 3795 5536 12650	2786 520 3625 5623 12554	2627 501 3500 5492 12120	2612 616 3493 5295 12017	2440 621 3226 5114 11401	2340 528 3208 4990 11066	2395 578 3102 5081 11156	2356 556 3065 4979 10960	2280 587 2902 4783 10552
HAZLETON CARBON LUZERNE COLUMBIA TOTALS	646 4480 1054 6180	723 4401 1001 6125	743 4339 1061 6143	710 4461 1011 6182	697 4276 1003 5976	715 4207 959 5881	680 4211 1024 5915	706 4114 925 5745	721 3587 956 5664	739 3845 987 5571	724 3734 897 5355	659 3567 907 5133
MCKEESPORT ALLEGHENY	25464	26074	26332	25496	24804	24136	23186	21068	20213	19378	17960	16569

	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
WESTMORELAND	6665	5565	5559	5536	5623	5492	5295	5114	4990	5081	4979	4783
TOTALS	32129	31635	31891	31032	30427	29628	28481	26182	25203	24459	22939	21352
MONT ALTO	1599	1636	1586	1610	1604	1633	1643	1633	1741	1659	1538	1455
FRANKLIN	1025	1018	1139	1074	1132	1057	1030	971	940	927	873	749
ADAMS	2624	2654	2725	2684	2736	2690	2673	2604	2681	2626	2411	2204
TOTALS												
NEW KENSINGTON	25464	26074	26332	25496	24804	24136	23186	21068	20213	19378	17960	16569
ALLEGHENY	6665	5565	5559	5536	5623	5492	5295	5114	4990	5081	4979	4783
WESTMORELAND	1578	1527	1517	1533	1560	1428	1518	1467	1445	1427	1333	1375
ARMSTRONG	33707	33166	33408	32565	31987	31056	29999	27649	26648	25886	24272	22727
TOTALS												
COCONINO	18854	20552	21189	20692	20468	19832	19123	18263	17442	16516	15335	13494
PHILADELPHIA	7827	8441	8660	8916	9124	9322	9532	9234	9309	9262	9188	9197
BUCKS	11125	11545	12020	11973	12260	11973	11780	11044	10716	10311	9558	8995
MONTGOMERY	37846	40942	41869	41581	41852	41127	40435	38541	37467	36089	34081	31686
TOTALS												
SCHUYLKILL	2448	2578	2536	2469	2443	2332	2389	2318	2289	2250	2187	2030
SCHUYLKILL	1325	1513	1571	1514	1494	1452	1419	1351	1383	1356	1307	1283
NORTHUMBERLAND	3773	4091	4107	3983	3937	3784	3808	3669	3672	3606	3494	3313
TOTALS												
SHENANGO VALLEY	1962	1968	1989	1946	2006	1998	1943	1820	1744	1745	1662	1680
LAWRENCE	2206	2312	2298	2362	2137	2175	2117	1981	1956	1878	1832	1482
MERCER	4168	4280	4287	4308	4143	4173	4060	3801	3700	3627	3494	3162
TOTALS												
WILKES-BARRE	4480	4401	4339	4461	4276	4207	4211	4114	3987	3845	3734	3567
LUZERNE	4480	4401	4339	4461	4276	4207	4211	4114	3987	3845	3734	3567
TOTALS												
WORTHINGTON-SCRANTON	3634	3613	3716	3708	3634	3438	3515	3324	3261	3185	3096	3109
LACKAWANNA	3634	3613	3716	3708	3634	3438	3515	3324	3261	3185	3096	3109
TOTALS												
YORK	4218	4346	4259	4391	4250	4401	4540	4335	4517	4393	4092	4013
YORK	1025	1018	1139	1074	1132	1057	1030	971	940	927	873	749
ADAMS	3041	3171	3050	3237	3224	3299	3345	3242	3316	3423	3198	3024
CUMBERLAND	3685	3782	3896	3957	4064	4112	4125	4062	3984	4054	3552	3747
DAUPHIN	4763	5059	6305	6543	6548	6569	6435	6171	6365	6145	5871	5610

II: METHODOLOGY

The technique employed for projecting the number of graduates from public and private secondary schools in each county of Pennsylvania is characteristically referred to as the cohort survival method. In this procedure, ratios are computed between the enrollment of one grade-level in a particular historical year and the enrollment of the previous grade-level in the prior historical year. When these ratios are computed between each pair of sequential grade-levels, they may be applied to the grade-by-grade enrollment for the most recent historical year to effectively "age" the enrollment in each grade-level through each subsequent grade-level and ultimately to graduation. The cohort survival method has been found to be a suitable mechanism for projecting primary and secondary school enrollments, where the enrollments of successive grade-levels in sequential years are characteristically composed largely of the same individuals. Because the enrollments also encompass the net effect of migration, the use of the method also takes into account population trends applicable to an area.

For the specific application, cohort survival rates were computed between each pair of grade-levels between grade one and graduation for the combined public and private primary and secondary school enrollments of each of the sixty-seven counties in Pennsylvania, utilizing the data collected and made available by the Division of Educational Statistics of the Pennsylvania Department of Education. ⁽⁴⁾ Rates were computed between each pair of sequential years between 1968 and 1972 with the average of the three values in closest agreement adopted for projection application. These rates were then used in

conjunction with the grade-by-grade enrollments reported for each county in the Fall of 1972 to develop projections of high school graduates in accord with the following relationship:

$$D_{c,t+n} = (E_{c,t,g}) [(R_{c,g+1,g}) \dots (R_{c,g+n,g+n-1})]$$

subject to $g+n=13$

where: $D_{c,t+n}$ = graduates in county c in projected year t+n

$E_{c,t,g}$ = enrollment in county c in most recent historical
year t in grade-level g

$R_{c,g+1,g}$ = cohort survival rate in county c from grade-level
g to grade-level g+1.

The projections of graduates by county for each year were then normalized in relation to the state-wide projection of graduates for each year. For 1973 through 1982, the preliminary state-wide projections developed by the Division of Educational Statistics were employed; for 1983 and 1984, projections based on live births were used for this purpose.⁽²⁾ This normalization procedure was employed in order to take into account the longer-term assessment of the trends of cohort survival rates, conducted on a state-wide basis by the Division of Educational Statistics, than was possible on a county by county basis. It is of note, however, that the normalization process had an average effect of only 1.2%. The normalized projections of graduates by county were calculated in accord with the following equation:

$$D_{c,t+n}^* = \frac{(D_{c,t+n}) (D_{s,t+n})}{\sum_{c=1}^{c=67} D_{c,t+n}}$$

where: $D_{c,t+n}^*$ = normalized graduates in county c in projected year t+n

$D_{s,t+n}$ = state-wide graduates in projected year t+n.

For determining the projections of graduates from the commuting areas associated with each of the eighteen campuses, the county projections were aggregated over the counties which are defined as comprising the commuting regions associated with each campus. (3)

REFERENCES

1. Projections through 1982 from "Projections of Educational Statistics to 1981-82, U.S. Department of Health, Education, and Welfare. Projections for 1983 and 1984 developed from records of live births from "Estimates of the Population of the U.S. and Components of Change", Current Population Reports, Series P-25, No. 499, U.S. Department of Commerce.
2. Projections through 1982 from preliminary figures supplied by the Division of Educational Statistics of the Pennsylvania Department of Education. Projections for 1983 and 1984 developed from records of live births from "Pennsylvania Natality and Mortality Statistics 1970", Pennsylvania Department of Health.
3. Newton, R. D., "The Commonwealth Campuses and the Commuting Student", Office of Vice President for Planning, The Pennsylvania State University, 1970.
4. Primary and Secondary school enrollments for both public and private institutions for 1968 through 1972 from "Our Schools Today"; Vol. 8, No. 1, 3, and 4; Vol. 9, No. 1, 3, and 4; Vol. 10, No. 1, 3 and 4; Vol. 11, No. 1, 3, and 4; Vol. 12, No. 1 and 4; Division of Educational Statistics, Pennsylvania Department of Education.